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 IBM Technical Disclosure Bulletins

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## Search History

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**DATE:** Wednesday, June 22, 2005    [Printable Copy](#)    [Create Case](#)

<u>Set</u> <u>Name</u> side by side	<u>Query</u>	<u>Hit</u> <u>Count</u>	<u>Set</u> <u>Name</u> result set
	<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=OR</i>		
<u>L21</u>	(4953085   4722055   4744027   4744026   5148365   4346442   4642768   5101353   4674044   4694397   4752877   4797839   4744028)! [PN]	25	<u>L21</u>
<u>L20</u>	('5799287'   '5148365') [PN]	4	<u>L20</u>
<u>L19</u>	('5799287'   '5148365') [URPN]	72	<u>L19</u>
<u>L18</u>	"dembo, ron".in.	8	<u>L18</u>
<u>L17</u>	L16 and 705/36	46	<u>L17</u>
<u>L16</u>	L15 and value	122	<u>L16</u>
<u>L15</u>	L12 and future	136	<u>L15</u>
<u>L14</u>	L12 and value	164	<u>L14</u>
<u>L13</u>	L12 and disaggregat\$	2	<u>L13</u>
<u>L12</u>	(portfolio with scenarios or portfolio near scenarios)	192	<u>L12</u>
<u>L11</u>	L10 and value	73	<u>L11</u>
<u>L10</u>	L9 and future	73	<u>L10</u>
<u>L9</u>	L8 and disaggregat\$	80	<u>L9</u>
<u>L8</u>	L7 and value	3981	<u>L8</u>
<u>L7</u>	portfolio	6636	<u>L7</u>
<u>L6</u>	L5 and disaggregat\$	5	<u>L6</u>
<u>L5</u>	optimal near portfolio	98	<u>L5</u>

L4 705.clas.  
L3 705/38  
L2 705/36  
L1 705/35

34660 L4  
876 L3  
1247 L2  
2087 L1

END OF SEARCH HISTORY



US006799167B1

**(12) United States Patent**  
Gullen et al.**(10) Patent No.: US 6,799,167 B1**  
**(45) Date of Patent: Sep. 28, 2004****(54) DYNAMIC PORTFOLIO BENCHMARKING****(75) Inventors:** David Gullen, San Francisco, CA (US);  
Lee Epstein, San Francisco, CA (US);  
Christopher Stoddart, Woodside, CA (US)**(73) Assignee:** Decision Analytics, Inc., San Francisco, CA (US)**(\*) Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.**(21) Appl. No.:** 09/425,128**(22) Filed:** Oct. 22, 1999**(51) Int. Cl.<sup>7</sup>** ..... G06F 17/60**(52) U.S. Cl.** ..... 705/36; 705/35**(58) Field of Search** ..... 705/36, 35**(56) References Cited**

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WO WO 96/06402 \* 2/1996 ..... G06F/17/60

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Dahlquist et al., "Evaluating portfolio performance with stochastic discount factors", The Journal of Business; Chicago; Jul. 1999.\*

Zargham et al., "A Web-based information system for stock evaluation", Advance Issues of E-Commerce and Web-Based Information Systems, WECWIS, 1999, International Conference on Apr. 8-9, 1999, Santa Clara, CA, pp. 81-83.\*  
Moody, J. Lizhong Wu, "Optimization of trading systems and portfolios", CSE Dept., Oregon Graduate Inst., Portland, OR; Computational Intelligence for Financial Engineering, 1997., proceedings of the IEEE/IAFE 1997, Mar. 24-25, 1997, New York City, NY.\*

Investorhome (WebPages from website, www.investor-home.com/process.html/, marked pp. 1-11, extracted on Internet on Apr. 18, 2001).\*

Webpage, "Asset Allocation and Portfolio Performance", from website http://www.business2business.on.ca/magazine/dec95/b2b\_doll.html; pp. 1-2, published in Dec. 95, extracted from Internet on Apr. 10, 2001.\*

Dahlquist et al., "Evaluating portfolio performance with stochastic discount factors", The Journal of Business; Chicago; Jul. 1999.\*

Zargham et al., "A Web-based information system for stock evaluation", Advance Issues of E-Commerce and Web-Based Information Systems, WECWIS, 1999, International Conference on Apr. 8-9, 1999, Santa Clara, CA, pp. 81-83.\*

(List continued on next page.)

Primary Examiner—Jeffrey A. Smith

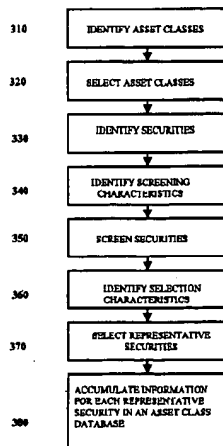
Assistant Examiner—Y. C. Garg

(74) Attorney, Agent, or Firm—Donald J. Lenkszus

**(57) ABSTRACT**

A benchmark portfolio is provided to be customizable to an investment portfolio where the customization is dynamic. Each customization can be recorded as a historical event, and the investment return of the benchmark portfolio is based on the recorded customizations. The benchmark portfolio includes select asset classes, which include a sweep account, where each asset class includes at least one security that is representative of a set of specifically screened securities within the asset class.

27 Claims, 7 Drawing Sheets





US006078905A

**United States Patent** [19][11] **Patent Number:** **6,078,905****Pich-LeWinter**[45] **Date of Patent:** **Jun. 20, 2000****[54] METHOD FOR OPTIMIZING RISK MANAGEMENT****[76] Inventor:** Eva Pich-LeWinter, 81900 Mountain View La., La Quinta, Calif. 92253**[21] Appl. No.:** 09/049,690**[22] Filed:** Mar. 27, 1998**[51] Int. Cl.<sup>7</sup>** ..... **G06F 17/60****[52] U.S. Cl.** ..... **705/36; 705/35; 705/38****[58] Field of Search** ..... **705/35, 36, 38****[56] References Cited****U.S. PATENT DOCUMENTS**

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**OTHER PUBLICATIONS**

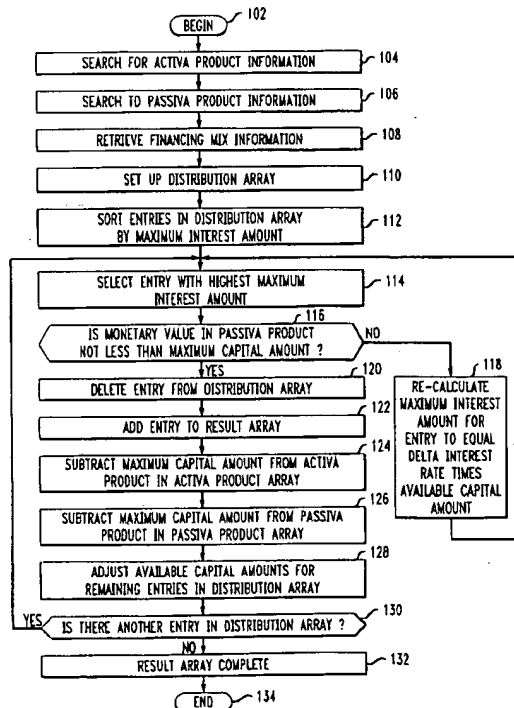
"Computers help manage cash flow, portfolios," Caribbean Business, p. 54,581 (abstract), Mar. 5, 1986.

**Primary Examiner**—James P. Trammell  
**Assistant Examiner**—Nicholas David Rosen  
**Attorney, Agent, or Firm**—Sofer & Haroon, LLP

**[57] ABSTRACT**

A method for optimizing a rate of return based on a bank's capital and loan products, comprises the creation of a plurality of arrays, comprising a passiva product array, an activa product array, a distribution array and a result array. Each passiva product array signifies a plurality of passiva products having a monetary value and an interest rate associated with it. Each activa product array signifies a plurality of activa products having a monetary value and an interest rate associated with it. The method further assigns to each activa product a plurality of eligible passiva products from the passiva product array, and a pre-determined maximum percentage of the activa product which may be financed by each of the eligible passiva products. For each activa product, enter on the distribution array, a single entry for each eligible passiva product. It calculates a maximum capital amount, a maximum interest amount and an available interest amount for each assignment made in the assigning step, selecting from the distribution array the largest the maximum interest amount.

The entries are processed depending on whether the monetary value of the eligible passiva article is less than the maximum capital amount for the selected single entry.

**9 Claims, 4 Drawing Sheets**

*SPAT*

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L18: Entry 6 of 8

File: USPT

Sep 15, 1992

US-PAT-NO: 5148365

DOCUMENT-IDENTIFIER: US 5148365 A

TITLE: Scenario optimization

DATE-ISSUED: September 15, 1992

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dembo; Ron S.	Toronto, Ontario			CA

APPL-NO: 07/ 394081 [\[PALM\]](#)

DATE FILED: August 15, 1989

INT-CL: [05] G06F 15/20

US-CL-ISSUED: 364/402; 364/408

US-CL-CURRENT: [705/36R](#)

FIELD-OF-SEARCH: 364/402, 364/401, 364/408

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

☐ Search Selected☐ Search ALL☐ Clear

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
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<input type="checkbox"/>	<a href="#">4642768</a>	February 1987	Roberts	
<input type="checkbox"/>	<a href="#">4674044</a>	June 1987	Kalmus et al.	
<input type="checkbox"/>	<a href="#">4694397</a>	September 1987	Grant et al.	
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<input type="checkbox"/>	<a href="#">4953085</a>	August 1990	Atkins	364/408

ART-UNIT: 236

PRIMARY-EXAMINER: Smith; Jerry

ASSISTANT-EXAMINER: Trammell; Jim

ATTY-AGENT-FIRM: Spencer, Frank &amp; Schneider

## ABSTRACT:

A method and apparatus are provided for optimally allocating available resources in a physical system defined by a mathematical model having parameters of uncertain values. The method comprises the steps of firstly assigning a value to each of the uncertain parameters in the mathematical model based on a scenario that may or is expected to occur. Thereafter, given the parameter values at each possible scenario, the mathematical model is solved to yield the best solution of the mathematical model for that scenario. Once this has been complete, a probability value representing the expected probability that the scenario will occur is assigned to each scenario solution. The scenario parameter values, scenario solutions and scenario probabilities are then used to determine a single solution to the mathematical model which best "fits" the desired system behavior under the uncertainty defined by all of the scenarios considered. The single solution is then used to allocate the resources in the system. The present method is particularly useful in modelling a target portfolio from a number of other financial instruments.

18 Claims, 10 Drawing figures

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L18: Entry 5 of 8

File: USPT

Aug 25, 1998

US-PAT-NO: 5799287

DOCUMENT-IDENTIFIER: US 5799287 A

TITLE: Method and apparatus for optimal portfolio replication

DATE-ISSUED: August 25, 1998

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dembo; Ron S.	Toronto, Ontario			CA

APPL-NO: 08/ 866303 [\[PALM\]](#)

DATE FILED: May 30, 1997

## PARENT-CASE:

This is a continuation of application Ser. No. 08/248,042, filed May 24, 1994, now abandoned.

INT-CL: [06] [G06 F 157/00](#)

US-CL-ISSUED: 705/36

US-CL-CURRENT: [705/36R](#)

FIELD-OF-SEARCH: 705/36, 705/37, 705/35, 395/925

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

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<input type="checkbox"/>	<a href="#">4744027</a>	May 1988	Bayer et al.	364/402
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<input type="checkbox"/>	<a href="#">4797839</a>	January 1989	Powell	364/554
<input type="checkbox"/>	<a href="#">4953085</a>	August 1990	Atkins	364/408

<input type="checkbox"/> 5101353	March 1992	Lupien et al.	705/37
<input type="checkbox"/> 5148365	September 1992	Dembo	364/402

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"The Cafe Behind the Hedge", Open Finance, Summer 1992.

ART-UNIT: 274

PRIMARY-EXAMINER: McElheny, Jr.; Donald E.

ATTY-AGENT-FIRM: Kenyon &amp; Kenyon

## ABSTRACT:

A method and apparatus for determining an optimal replicating portfolio for a given target portfolio involves an initial step wherein a user defines a target portfolio to be replicated, a set of available market instruments from which the replicating portfolio may be created, a set of future scenarios, a horizon date, and a minimum profit to be attained. A representation of the trade-off between risk and expected profit for some arbitrary replicating portfolio is then determined and used to calculate a maximum risk-adjusted profit. The maximum risk-adjusted profit reflects that level of return that may be achieved with an optimum degree of risk; that is, it reflects that point in the risk/reward trade-off where a marginal cost of risk is equivalent to a marginal benefit attainable by assuming that risk. The method then uses the predefined set of available market instruments to identify a set of transactions that will create a replicating portfolio that will achieve the maximum risk-adjusted profit. The method and apparatus also derives the information required to compute a risk premium for pricing of portfolios in incomplete markets, and performs the computation.

12 Claims, 8 Drawing figures

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## Search Results - Record(s) 1 through 8 of 8 returned.

### 1. Document ID: US 20010028369 A1

L18: Entry 1 of 8

File: PGPB

Oct 11, 2001

PGPUB-DOCUMENT-NUMBER: 20010028369

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010028369 A1

TITLE: Three dimensional spatial user interface

PUBLICATION-DATE: October 11, 2001

#### INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gallo, Anthony Carmen	Toronto		CA	
Graham, Colin Eric	Toronto		CA	
<u>Dembo, Ron</u>	Toronto		CA	
Talbot, Jimmy Daniel	Toronto		CA	
Gallagher, Peter James	Toronto		CA	

#### ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
VIZIBLE.COM INC.				03

APPL-NO: 09/ 809330 [PALM]

DATE FILED: March 16, 2001

#### RELATED-US-APPL-DATA:

Application 09/809330 is a continuation-in-part-of US application 09/527917, filed March 17, 2000, PENDING

Application is a non-provisional-of-provisional application 60/266471, filed February 6, 2001,

INT-CL: [07] G06 F 3/00

US-CL-PUBLISHED: 345/848; 345/850

US-CL-CURRENT: 715/848

REPRESENTATIVE-FIGURES: 1

#### ABSTRACT:

A method and system of providing a three dimensional spatial user interface (SUI) to a user of a computing device. The SUI may be manipulated in three dimensions and contains a plurality of portals. A portal may contain a sensory cue that provides a reminder as to the content of the portal. Upon selection of a portal, an application program associated with the cue in the portal is invoked. Portals may also contain further instances of the SUI of the present invention, thus providing hierarchical depth. In the preferred

embodiment, the SUI is implemented as a sphere and may be viewed from an external or internal perspective.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw Desc	Ima
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☐ 2. Document ID: US 20010011243 A1

L18: Entry 2 of 8

File: PGPB

Aug 2, 2001

PGPUB-DOCUMENT-NUMBER: 20010011243

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20010011243 A1

TITLE: Risk management system, distributed framework and method

PUBLICATION-DATE: August 2, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
<u>Dembo, Ron</u>	Toronto		CA	
Adar, Alon	Toronto		CA	
Bartlett, Neil Edward	Toronto		CA	
Parkinson, Brian	Toronto		CA	
Perry, David	Toronto		CA	
Zerbs, Michael	Markham		CA	

APPL-NO: 09/ 811684 [PALM]

DATE FILED: March 20, 2001

RELATED-US-APPL-DATA:

Application 09/811684 is a continuation-of US application 09/323680, filed June 2, 1999, PENDING

INT-CL: [07] G06 F 17/60

US-CL-PUBLISHED: 705/36

US-CL-CURRENT: 705/36R

REPRESENTATIVE-FIGURES: 6

ABSTRACT:

A risk management system and method of determining a risk metric for a portfolio of instruments is provided. The system and method include a database wherein determined risk values for instruments in a set of instruments under each scenario can be maintained. At least one risk engine can be employed to determine values for the instruments and at least one aggregation engine can be employed to produce desired risk metrics for the set of instruments or a subset thereof. Each risk engine and each aggregation engine is connected to the database by an appropriate network.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw Desc	Ima
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☐ 3. Document ID: US 6636246 B1

L18: Entry 3 of 8

File: USPT

Oct 21, 2003

US-PAT-NO: 6636246

DOCUMENT-IDENTIFIER: US 6636246 B1

**\*\* See image for Certificate of Correction \*\***

TITLE: Three dimensional spatial user interface

DATE-ISSUED: October 21, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gallo; Anthony Carmen	Toronto			CA
Graham; Colin E.	Toronto			CA
<u>Dembo; Ron</u>	Toronto			CA
Talbot; Jimmy D.	Toronto			CA
Gallagher; Peter J.	Toronto			CA

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Vizable.com Inc.	Toronto			CA	03

APPL-NO: .09/ 527917 [PALM]

DATE FILED: March 17, 2000

INT-CL: [07] G06 F 3/00

US-CL-ISSUED: 345/805; 345/850, 345/746

US-CL-CURRENT: 715/805; 715/746, 715/850

FIELD-OF-SEARCH: 345/805, 345/782, 345/742, 345/743, 345/748-749, 345/803-804, 345/848-855, 345/653, 345/836, 345/441, 345/676-680, 345/744-747, 345/757

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5148154</u>	September 1992	MacKay et al.	
<u>5303388</u>	April 1994	Kreitman et al.	
<u>5339390</u>	August 1994	Robertson et al.	
<u>5485197</u>	January 1996	Hoarty	
<u>5515486</u>	May 1996	Amro et al.	
<u>5602564</u>	February 1997	Iwamura et al.	345/119
<u>5678015</u>	October 1997	Goh	
<u>5729673</u>	March 1998	Cooper et al.	345/782
<u>5838326</u>	November 1998	Card et al.	
<u>5880733</u>	March 1999	Horvitz et al.	
<u>5883625</u>	March 1999	Crawford et al.	345/744
<u>6005579</u>	December 1999	Sugiyama et al.	
<u>6016145</u>	January 2000	Horvitz et al.	345/850
<u>6104391</u>	August 2000	Johnston, Jr. et al.	345/744

<u>6262736</u>	July 2001	Nelson	345/853
<u>6307574</u>	October 2001	Ashe et al.	345/765
<u>6344861</u>	February 2002	Naughton et al.	345/769
<u>6363404</u>	March 2002	Dalal et al.	707/513

## FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0 483 777	June 1992	EP	
0 767 418	April 1997	EP	

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ART-UNIT: 2174

PRIMARY-EXAMINER: Sax; Steven

ATTY-AGENT-FIRM: Bereskin &amp; Parr

## ABSTRACT:

A method and system of providing a three dimensional spatial user interface (SUI) to a user of a computing device. The SUI may be manipulated in three dimensions and contains a plurality of portals. A portal may contain a sensory cue that provides a reminder as to the content of the portal. Upon selection of a portal, an application program associated with the cue in the portal is invoked. Portals may also contain further instances of the SUI of the present invention, thus providing hierarchical depth. In the preferred embodiment, the SUI is implemented as a sphere and may be viewed from an external or internal perspective.

23 Claims, 11 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KMC	Draw Desc	Ima
[Empty Row]											

☐ 4. Document ID: US 6278981 B1

L18: Entry 4 of 8

File: USPT

Aug 21, 2001

US-PAT-NO: 6278981

DOCUMENT-IDENTIFIER: US 6278981 B1

TITLE: Computer-implemented method and apparatus for portfolio compression

DATE-ISSUED: August 21, 2001

INVENTOR-INFORMATION:

<http://westbrs:9000/bin/gate.exe?f=TOC&state=jju7m.22&ref=18&dbname=PGPB,USPT,USOC,EP...> 6/22/05

NAME	CITY	STATE	ZIP CODE	COUNTRY
<u>Dembo; Ron</u> Samuel	Ontario			CA
Kreinin; Alexander Yacov	Thornhill			CA
Rosen; Dan	Toronto			CA

## ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE	CODE
Algorithmics International Corporation	Ontario			CA	03	

APPL-NO: 09/ 084923 [PALM]

DATE FILED: May 28, 1998

## PARENT-CASE:

This application claims priority to Provisional Application No. 60/057,927, filed May 29, 1997.

INT-CL: [07] G06 F 17/60

US-CL-ISSUED: 705/36

US-CL-CURRENT: 705/36R

FIELD-OF-SEARCH: 705/36, 705/37

## PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4346442</u>	August 1982	Musmanno	364/408
<u>4642768</u>	February 1987	Roberts	364/408
<u>4674044</u>	June 1987	Kalmus et al.	364/408
<u>4694397</u>	September 1987	Grant et al.	364/408
<u>4722055</u>	January 1988	Roberts	364/408
<u>4744026</u>	May 1988	Vanderbei	364/402
<u>4744027</u>	May 1988	Bayer et al.	364/402
<u>4744028</u>	May 1988	Karmarkar	364/402
<u>4752877</u>	June 1988	Roberts et al.	364/408
<u>4797839</u>	January 1989	Powell	364/554
<u>4953085</u>	August 1990	Atkins	364/408
<u>5148365</u>	September 1992	Dembo	364/402
<u>5774880</u>	June 1998	Ginsberg	705/36
<u>5799287</u>	August 1998	Dembo	705/36
<u>5893079</u>	April 1999	Cwenar	705/36

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ART-UNIT: 213

PRIMARY-EXAMINER: Hafiz; Tariq R.

ASSISTANT-EXAMINER: Meinecke-Diaz; Susanna

ATTY-AGENT-FIRM: Kenyon & Kenyon

#### ABSTRACT:

A computer-implemented method for compressing a portfolio of financial instruments is described. Financial instruments to be compressed are identified, and a compressed subportfolio corresponding to the identified financial instruments is generated. The compressed subportfolio and any non-compressed financial instruments are then combined into a compressed portfolio.

20 Claims, 7 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference		Claims	KMC	Draw Desc	Ima
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#### ☐ 5. Document ID: US 5799287 A

L18: Entry 5 of 8

File: USPT

Aug 25, 1998

US-PAT-NO: 5799287

DOCUMENT-IDENTIFIER: US 5799287 A

TITLE: Method and apparatus for optimal portfolio replication

DATE-ISSUED: August 25, 1998

#### INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dembo; Ron S.	Toronto, Ontario			CA

APPL-NO: 08/ 866303 [PALM]

DATE FILED: May 30, 1997

## PARENT-CASE:

This is a continuation of application Ser. No. 08/248,042, filed May 24, 1994, now abandoned.

INT-CL: [06] G06 F 157/00

US-CL-ISSUED: 705/36

US-CL-CURRENT: 705/36R

FIELD-OF-SEARCH: 705/36, 705/37, 705/35, 395/925

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4346442</u>	August 1982	Musmanno	364/408
<u>4642768</u>	February 1987	Roberts	364/408
<u>4674044</u>	June 1987	Kalmus et al.	364/408
<u>4694397</u>	September 1987	Grant et al.	364/408
<u>4722055</u>	January 1988	Roberts	364/408
<u>4744026</u>	May 1988	Vanderbei	364/402
<u>4744027</u>	May 1988	Bayer et al.	364/402
<u>4744028</u>	May 1988	Karmarkar	364/402
<u>4752877</u>	June 1988	Roberts et al.	364/408
<u>4797839</u>	January 1989	Powell	364/554
<u>4953085</u>	August 1990	Atkins	364/408
<u>5101353</u>	March 1992	Lupien et al.	705/37
<u>5148365</u>	September 1992	Dembo	364/402

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Ring, "Wells Fargo Gets Most New Business in Dynamic Wedging", Pensions & Investment Age, Feb. 9, 1987, p. 31.

Dembo et al., "Tracking Models and the Optimal Regret Distribution in Asset Allocation", Applied Stochastic Models and Data Analysis, 1990, vol. 8, pp. 151-157.

Dembo, "Scenario Optimization", Annals of Operation Research, 30 (1991) pp. 63-80.

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Torres, "Mathematician Race to Develop New Kinds of Trading Instruments", The Wall Street Journal, Oct. 18, 1991.

Stoffman, "The Hedging Hotshot of Bay street", Dec. 1990, pp. 56-59.

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Dembo et al., "Protective Basket," Options, vol. 3, No. 2, Feb. 1990, pp. 25-28.



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Dembo et al., "Share the Load", Risk, vol. 4, No. 4, Apr. 1991, pp. 44-47.  
Davidson, "Drawing on Data", Technology, pp. 49-53.  
"The Cafe Behind the Hedge", Open Finance, Summer 1992.

ART-UNIT: 274

PRIMARY-EXAMINER: McElheny, Jr.; Donald E.

ATTY-AGENT-FIRM: Kenyon & Kenyon

ABSTRACT:

A method and apparatus for determining an optimal replicating portfolio for a given target portfolio involves an initial step wherein a user defines a target portfolio to be replicated, a set of available market instruments from which the replicating portfolio may be created, a set of future scenarios, a horizon date, and a minimum profit to be attained. A representation of the trade-off between risk and expected profit for some arbitrary replicating portfolio is then determined and used to calculate a maximum risk-adjusted profit. The maximum risk-adjusted profit reflects that level of return that may be achieved with an optimum degree of risk; that is, it reflects that point in the risk/reward trade-off where a marginal cost of risk is equivalent to a marginal benefit attainable by assuming that risk. The method then uses the predefined set of available market instruments to identify a set of transactions that will create a replicating portfolio that will achieve the maximum risk-adjusted profit. The method and apparatus also derives the information required to compute a risk premium for pricing of portfolios in incomplete markets, and performs the computation.

12 Claims, 8 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw Desc	Ima
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☐ 6. Document ID: US 5148365 A

L18: Entry 6 of 8

File: USPT

Sep 15, 1992

US-PAT-NO: 5148365

DOCUMENT-IDENTIFIER: US 5148365 A

TITLE: Scenario optimization

DATE-ISSUED: September 15, 1992

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Dembo; Ron S.	Toronto, Ontario			CA

APPL-NO: 07/ 394081 [PALM]

DATE FILED: August 15, 1989

INT-CL: [05] G06F 15/20

US-CL-ISSUED: 364/402; 364/408

US-CL-CURRENT: 705/36R

FIELD-OF-SEARCH: 364/402, 364/401, 364/408

PRIOR-ART-DISCLOSED:

## U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>4346442</u>	August 1982	Musmanno	
<u>4642768</u>	February 1987	Roberts	
<u>4674044</u>	June 1987	Kalmus et al.	
<u>4694397</u>	September 1987	Grant et al.	
<u>4722055</u>	January 1988	Roberts	
<u>4744026</u>	May 1988	Vanderbei	
<u>4744027</u>	May 1988	Bayer et al.	
<u>4744028</u>	May 1988	Karmarkar	
<u>4752877</u>	June 1988	Roberts et al.	
<u>4797839</u>	January 1989	Powell	364/554
<u>4953085</u>	August 1990	Atkins	364/408

ART-UNIT: 236

PRIMARY-EXAMINER: Smith; Jerry

ASSISTANT-EXAMINER: Trammell; Jim

ATTY-AGENT-FIRM: Spencer, Frank &amp; Schneider

## ABSTRACT:

A method and apparatus are provided for optimally allocating available resources in a physical system defined by a mathematical model having parameters of uncertain values. The method comprises the steps of firstly assigning a value to each of the uncertain parameters in the mathematical model based on a scenario that may or is expected to occur. Thereafter, given the parameter values at each possible scenario, the mathematical model is solved to yield the best solution of the mathematical model for that scenario. Once this has been complete, a probability value representing the expected probability that the scenario will occur is assigned to each scenario solution. The scenario parameter values, scenario solutions and scenario probabilities are then used to determine a single solution to the mathematical model which best "fits" the desired system behavior under the uncertainty defined by all of the scenarios considered. The single solution is then used to allocate the resources in the system. The present method is particularly useful in modelling a target portfolio from a number of other financial instruments.

18 Claims, 10 Drawing figures

Full	Title	Citation	Front	Review	Classification	Date	Reference		Claims	KNOW	Draw Desc	Ima
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☐ 7. Document ID: WO 9854666 A1

L18: Entry 7 of 8

File: EPAB

Dec 3, 1998

PUB-NO: WO009854666A1

DOCUMENT-IDENTIFIER: WO 9854666 A1

TITLE: COMPUTER-IMPLEMENTED METHOD AND APPARATUS FOR PORTFOLIO COMPRESSION

PUBN-DATE: December 3, 1998

INVENTOR-INFORMATION:

NAME	COUNTRY
DEMBO, RON S	CA
KREININ, ALEXANDER Y	CA
ROSEN, DAN	CA

## ASSIGNEE-INFORMATION:

NAME	COUNTRY
ALGORITHMICS INC	CA
DEMBO RON S	CA
KREININ ALEXANDER Y	CA
ROSEN DAN	CA

APPL-NO: CA09800519  
APPL-DATE: May 29, 1998

PRIORITY-DATA: US05092797P (May 29, 1997)

INT-CL (IPC): G06 F 17/60  
EUR-CL (EPC): G06F017/60; G06F017/60

## ABSTRACT:

CHG DATE=19990905 STATUS=O>A computer-implemented method for compressing a portfolio of financial instruments is described. Financial instruments to be compressed are identified, and a compressed subportfolio corresponding to the identified financial instruments is generated. The compressed subportfolio and any non-compressed financial instruments are then combined into a compressed portfolio.

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KMC	Draw Desc	Ima
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☐ 8. Document ID: EP 686926 A2

L18: Entry 8 of 8

File: EPAB

Dec 13, 1995

PUB-NO: EP000686926A2  
DOCUMENT-IDENTIFIER: EP 686926 A2  
TITLE: Method and apparatus for optimal portfolio replication

PUBN-DATE: December 13, 1995

## INVENTOR-INFORMATION:

NAME	COUNTRY
DEMBO, RON S	CA

## ASSIGNEE-INFORMATION:


NAME	COUNTRY
DEMBO RON S	CA

APPL-NO: EP95303465  
APPL-DATE: May 23, 1995

PRIORITY-DATA: US24804294A (May 24, 1994)

INT-CL (IPC): G06 F 17/60  
EUR-CL (EPC): G06F017/60

## ABSTRACT:

The disclosure relates to a method and apparatus for determining an optimal replicating portfolio for a given target portfolio involves an initial step wherein a user defines a target portfolio to be replicated, a set of available market Instruments from which the replicating portfolio may be created, a set of future scenarios, a horizon date, and a minimum profit to be attained. A representation of the trade-off between risk and expected profit for some arbitrary replicating portfolio is then determined and used to calculate a maximum risk-adjusted profit. The maximum risk-adjusted profit reflects that level of return that may be achieved with an optimum degree of risk; that is, it reflects that point in the risk/reward trade-off where a marginal cost of risk is equivalent to a marginal benefit attainable by assuming that risk. The method then uses the predefined set of available market instruments to identify a set of transactions that will create a replicating portfolio that will achieve the maximum risk-adjusted profit. The method and apparatus also derives the information required to compute a risk premium for pricing of portfolios in incomplete markets, and performs the computation. 

Full	Title	Citation	Front	Review	Classification	Date	Reference			Claims	KWMC	Draw Desc	Clip
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
"dembo, ron".in.	8

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